SUBJECT INDEX

Acousto-ultrasonic (AU) technique, p. 111
Alcohol-containing fuels, p. 213
  ethanol, p. 213
  FRP, pp. 213, 250
  gasohol, p. 213
  methanol, p. 213
  MTBE, p. 213
Automotive foam, p. 87
Bismaleimide (BMI) matrix, p. 509
  composite laminates, p. 509
  damage growth, p. 509
  delamination, p. 509
  matrix crack, p. 509
  shear-lag analysis, p. 509
  stiffness reduction, p. 509
Boundary conditions, p. 574
Buckling, p. 326
CAE
  polymeric processing, p. 681
  process simulation, p. 681
California Technical Bulletin 133 Test, p. 1071
Capillary action, p. 20
Cellulosics, p. 54
Chemical etching, p. 98
Cohesive energy density, p. 155
Composites, pp. 20, 54, 111, 793, 856, 1071
  3-D, p. 271
  advanced, p. 541
  ceramic matrix, p. 420
  cylinders, p. 408
  fiber reinforced, pp. 467, 698
  flat braided, p. 740
  glass fiber reinforced, p. 448
  laminates, pp. 128, 574, 880
  modified bismaleimide, p. 1135
  multilayer, p. 237
  particulate, p. 237
  plates, p. 803
  polymer, pp. 98, 142, 1056
  postbuckling, p. 803
  pultruded FRP, pp. 386, 835
  residual stress, p. 408
  stiffened panels, p. 555
  stiffened shells, p. 574
  stiffness tailoring, p. 803
  structural optimization, p. 803
  thermoplastic, pp. 339, 768, 822
  thermoset, p. 698
  unidirectional, p. 498
Compression molding, pp. 301, 698
Compression strength, p. 326
Cone calorimeter, p. 1071
Cooling towers, p. 942
Corrosion testing, p. 213
Creep, p. 1056
Crystallinity, p. 38
C-scan, p. 856
Cure characterization, p. 918
Cure modeling, p. 918
Damage
  cumulative, p. 128
  detection, p. 111
  evaluation, p. 1135
  impact, p. 111
  tolerance, p. 856
D'Arcy's Law, p. 20
Degree of cure, p. 288
Delamination, pp. 722, 835, 856
Dielectric analysis, p. 918
Diffusion coefficient, p. 142
Drop weight test, p. 1135
E-glass/epoxy, p. 326
Elastic moduli, p. 237
Elastomeric network, p. 756
  damping function, p. 756
  Mooney-Rivlin constants, p. 756
  Mullins effect, p. 756
  relaxation time, p. 756
  stress softening effects, p. 756
EMI buildings, p. 942
End-notched flexure test, p. 541
Energy absorbed mechanism, p. 1135
Epoxy foams, p. 1116
Fatigue life, p. 128
Fiber glass mats, p. 467
Fiber optics, p. 68
Fiber reinforced ceramics, p. 420
Fibers

SUBJECT INDEX

Acousto-ultrasonic (AU) technique, p. 111
Alcohol-containing fuels, p. 213
  ethanol, p. 213
  FRP, pp. 213, 250
  gasohol, p. 213
  methanol, p. 213
  MTBE, p. 213
Automotive foam, p. 87
Bismaleimide (BMI) matrix, p. 509
  composite laminates, p. 509
  damage growth, p. 509
  delamination, p. 509
  matrix crack, p. 509
  shear-lag analysis, p. 509
  stiffness reduction, p. 509
Boundary conditions, p. 574
Buckling, p. 326
CAE
  polymeric processing, p. 681
  process simulation, p. 681
California Technical Bulletin 133 Test, p. 1071
Capillary action, p. 20
Cellulosics, p. 54
Chemical etching, p. 98
Cohesive energy density, p. 155
Composites, pp. 20, 54, 111, 793, 856, 1071
  3-D, p. 271
  advanced, p. 541
  ceramic matrix, p. 420
  cylinders, p. 408
  fiber reinforced, pp. 467, 698
  flat braided, p. 740
  glass fiber reinforced, p. 448
  laminates, pp. 128, 574, 880
  modified bismaleimide, p. 1135
  multilayer, p. 237
  particulate, p. 237
  plates, p. 803
  polymer, pp. 98, 142, 1056
  postbuckling, p. 803
  pultruded FRP, pp. 386, 835
  residual stress, p. 408
  stiffened panels, p. 555
  stiffened shells, p. 574
  stiffness tailoring, p. 803
  structural optimization, p. 803
  thermoplastic, pp. 339, 768, 822
  thermoset, p. 698
  unidirectional, p. 498
Compression molding, pp. 301, 698
Compression strength, p. 326
Cone calorimeter, p. 1071
Cooling towers, p. 942
Corrosion testing, p. 213
Creep, p. 1056
Crystallinity, p. 38
C-scan, p. 856
Cure characterization, p. 918
Cure modeling, p. 918
Damage
  cumulative, p. 128
  detection, p. 111
  evaluation, p. 1135
  impact, p. 111
  tolerance, p. 856
D'Arcy's Law, p. 20
Degree of cure, p. 288
Delamination, pp. 722, 835, 856
Dielectric analysis, p. 918
Diffusion coefficient, p. 142
Drop weight test, p. 1135
E-glass/epoxy, p. 326
Elastic moduli, p. 237
Elastomeric network, p. 756
  damping function, p. 756
  Mooney-Rivlin constants, p. 756
  Mullins effect, p. 756
  relaxation time, p. 756
  stress softening effects, p. 756
EMI buildings, p. 942
End-notched flexure test, p. 541
Energy absorbed mechanism, p. 1135
Epoxy foams, p. 1116
Fatigue life, p. 128
Fiber glass mats, p. 467
Fiber optics, p. 68
Fiber reinforced ceramics, p. 420
Fibers

carbon, pp. 142, 1135
compression, p. 20
form, p. 448
glass, pp. 20, 1100
lignocellulosic, p. 54
newspaper, p. 54
orientation, p. 908
shape, p. 142
Filament winding, p. 408
Finite difference analysis, p. 918
Flexure properties, p. 895
Foamed plastic, p. 1116
Fourier transforms, p. 271
Fracture
DCB test, p. 509
ENF test, p. 509
interface, p. 835
interlaminar, p. 509
intralaminar, p. 509
mixed mode, pp. 498, 722
Mode II, p. 541
toughness, p. 509
Fracture mechanics, pp. 722, 768, 822
FRP, p. 142
FRP-wood interface, p. 835
adhesive strength, p. 835
bond strength, p. 835
hybrid composites, p. 835
interface strength, p. 835
FTIR, pp. 38, 68
Fuel
alcohol-containing, p. 213
gasoline, p. 213
high octane, p. 213
oxygenated, p. 213
storage tanks, p. 213
Gel time/test, p. 871
GMT-glass mat thermoplastics, pp. 768, 822
acoustic emission, p. 768
damage zone, pp. 768, 822
failure, pp. 768, 822
impact testing, p. 822
infrared thermography, p. 768
textile preform, pp. 768, 822
Graphite/epoxy, pp. 111, 188, 288, 856, 880
Heat release rate, p. 1071
Heat transfer, p. 288
High octane fuels, p. 213
Honeycomb, p. 355
marine applications, p. 355
sandwich panels, p. 355
hygrothermal effects, p. 1056
IITRI test fixture, p. 326
Image enhancement, p. 271
Impact, p. 856
fatigue, p. 856
low energy, p. 856
repeated, p. 856
resistance, p. 1135
Infrared thermography, p. 768
Injection molding, p. 98
filler particles, p. 98
migration, p. 98
molding parameters, p. 98
phase separation, p. 98
Interlaminar
free-edge stress, pp. 326, 555
stiffness, p. 880
strength, p. 880
stress, p. 722
test, p. 880
Isocyanurate, p. 68
Knitted fabrics, p. 908
Laminates
comparisons, p. 908
crossply, p. 326
fabric, pp. 326, 908
failure, p. 128
orthotropic, p. 880
remaining life, p. 128
residual strength, p. 128
stiffness reduction, p. 128
unidirectional, p. 326
Lignocellulosics, p. 54
Mechanically fastened joint, p. 740
braided hole, p. 740
flat braided bar, p. 740
machined hole, p. 740
Matrix cracking, p. 856
Micropore, p. 1116
Mixed mode fracture analysis, pp. 498, 722
Modeling
creep, p. 1056
parametric, p. 1056
composites, p. 1056

(continued)

Subject Index (continued)
Moisture
absorption, p. 142
assisted creep, p. 1056
content, p. 142
Mold filling, pp. 20, 637
bending, p. 637
preforming effects, p. 637
stretching, p. 637
Mooney-Rivlin constants, p. 756
Mullins effect, p. 756
NDE, p. 271
Newspaper fibers
newsprint, p. 54
recycling, p. 54
reinforcing filler, p. 54
Plasma etching, p. 98
Poiseuille's Law, p. 20
Poisson's ratio, p. 880
Poly(butylene glycol), p. 155
Polycaprolactone polyol, p. 2
Polycarbonate polyol, p. 2
Polyester concrete, p. 895
Polyester polyol, p. 2
Polyether polyol, p. 2
Poly(ethylene glycol), p. 155
Recycled poly(ethylene terephthalate), pp. 895, 927
Polymeric methylene diphenyl diisocyanate, p. 155
Polypropylene, pp. 38, 339, 768, 822
Poly(propylene glycol), p. 155
Poly(tetramethylene glycol), p. 155
Polyurea, p. 68
Polyurethanes, pp. 20, 68, 87, 155
fatigue cut growth, p. 2
fatigue striations, p. 2
flexibility, p. 87
foams, p. 1071
fracture surface, p. 2
insulation, p. 155
k-factor aging, p. 155
permeability, p. 155
recycling, p. 87
rigid foams, p. 155
rubber elasticity, p. 2
S-N fatigue curves, p. 2
sound dampening, p. 87
stress concentration factor, p. 2
tearing energy, p. 2
thermoplastic, p. 2
weight growth resistance, p. 2
Pre-engineered buildings, p. 942
Prosthetics, p. 301
bending fatigue test, p. 301
energy storing, p. 301
flexure test, p. 301
impact test, p. 301
sheet molding compounds, (SMC), p. 301
Pull force, p. 188
Pultruded fiber reinforced plastics, pp. 386, 942
beam-to-beam connections, p. 386
beam-to-column connections, p. 386
bolted joints, p. 386
bonded joints, p. 386
civil engineering applications, pp. 386, 942
failure, p. 386
joint flexibility, p. 386
universal connector, p. 386
Pultruded frame structures, p. 199
beams, pp. 199, 942
clip angles, p. 199
connections, pp. 199, 942
design, p. 199
failure, p. 199
moment/rotation, p. 199
semi-rigid analysis, p. 199
testing, p. 199
Pultrusion, pp. 188, 199, 288, 301, 386, 484, 835, 871, 942
back flow, p. 484
die inlet, p. 484
die taper, p. 484
fluid mechanics, p. 484
preform size, p. 484
pull speed, p. 484
resin, p. 871
resin pressure, p. 484
thermoplastic, p. 927
PVC foams, p. 250
PVDF sensors, p. 111
Reaction kinetics, p. 68
Reactive polymerization, p. 20
Reinforced epoxy foams, p. 1116
Resin transfer molding (RTM), pp. 467, 637, 681
filling simulation, p. 681

Response surface methodology, p. 38
RIM, pp. 68, 87
Sandwich composite chemical resistant tanks, p. 250
  creep, p. 250
  end-grain balsa, p. 250
  fatigue, p. 250
  fire resistance, p. 250
  honeycombs, p. 250
Seat molding compound, p. 1100
S-glass/epoxy, p. 326
Sheet molding compound (SMC), pp. 237, 301, 666, 918
  chemical shrinkage, p. 666
  dilatometry, p. 666
  kinetics of cure, p. 666
  low profile additives, p. 666
  thermal shrinkage, p. 666
  viscosity, p. 666
Skin-stiffener interface, p. 555
  delamination onset, p. 555
  failure criterion, p. 555
  separation, p. 555
  stress singularity, p. 555
Static analysis, p. 574
Steel reinforcement, p. 895
Stiffness matrix, p. 574
Strain energy release rate, pp. 2, 722
Stringers, p. 908
Surface quality analysis, p. 1100
Tabbing, p. 908
Taguchi, p. 871
Tensile stress-strain, p. 2
Tension-compression cycling, p. 420
  damage mechanisms, p. 420
  fatigue, p. 420
  fiber reinforced ceramics, p. 420
Thermal expansion, p. 237
Thermoplastic sheet composites, p. 339
  flexural properties of, p. 339
  impact behavior, p. 339
  polypropylene, p. 339
Thermoplastics, pp. 54, 768, 822, 927
Thermoset composite parts, p. 698
  compression molding, p. 698
  fiber reinforced, p. 698
  shrinkage, p. 698
  warpage, p. 698
Torsion, p. 942
Ultrasonic C-scan, p. 111
Unsaturated polyester, pp. 895, 1100
Vinyl ester, p. 213
Wetout, p. 20
Wohler curves, p. 1116
Woven roving, p. 908
Yeh-Stratton criterion, pp. 498, 793
  anisotropic failure criterion, p. 793
  interaction component, p. 793

AUTHOR INDEX

Abdelhamid, M. K., p. 386
Aditya, P. K., p. 142
Arakawa, K., p. 1100
Arbogast, R. E., p. 301
Bank, L. C., p. 199
Barbero, E., p. 835
Bartkus, E. K., p. 301
Basar, R., p. 2
Bigg, D. M., p. 339
Biggers, S. B., p. 803
Bisarnsin, T., p. 942
Bitzer, T., p. 355
Bledzki, A. K., p. 1116
Boero, G., p. 681
Bojji, C., p. 856
Boudreault, J.-F., p. 262
Boukhili, R., p. 856
Broos, J. A. F., p. 361
Buckley, J. D., p. 927
Campbell, G. A., p. 98
Carleton, P. S., pp. 20, 68
Chevalier, J. L., p. 250
Choy, C. L., p. 1135
Clemons, C., p. 54
Colvin, J. M., p. 301
Conway, J. H., p. 386
Cortelek, D. I., p. 68
Crasto, A. S., p. 326
Cui, W., p. 722
Damiani, A., p. 213
Davalos, J., p. 835

(continued)

Author Index (continued)
Day, D. R., p. 918
deHaseth, J. A., p. 68
DeWalt, P. L., p. 908
Donti, R. P., p. 288
Dontula, N., p. 98
Ehrenstein, G. W., p. 237
Eicher, W. J., p. 1071
Fejes-Kozma, Z., pp. 768, 822
Fisa, B., p. 371
Fong, L., p. 637
Fowler, D. W., p. 895
Fricke, A. L., p. 98
Fujita, A., p. 740
Gao, D. M., p. 262
Gao, Z., p. 128
Gauvin, R., pp. 262, 371, 856
Gorthala, R., pp. 288, 484
Goswami, S., p. 574
Green, A., p. 942
Grünbauer, H. J. M., p. 361
Guemes, J. A., p. 408
Hamada, H., p. 740
Harms, R., p. 439
Hoa, S. V., p. 111
Hoenke, M. S., p. 361
Iwami, E., p. 1100
Jones, M., p. 722
Kabelka, J., p. 237
Kamody, J. F., p. 213
Kaplan, W. A., p. 155
Karger-Kocsis, J., pp. 768, 822
Kassapoglou, C., p. 555
Kerachni, A., p. 371
Kia, H. G., p. 666
Kim, C. H., pp. 498, 793
Kim, R. Y., pp. 326, 880
Kimura, K., p. 1100
Kokta, B. V., p. 38
Kolycheck, E. G., p. 2
Kontou, E., p. 756
Kou, C.-H., p. 509
Kurek, K., p. 1116
Lackey, E., p. 188
Laman, S. A., p. 541
Lee, L. J., p. 637
Lehnert, A. B., p. 361
Long, E. R., Jr., p. 271
Love, E. A., p. 942
Maekawa, Z., p. 740
Mall, S., p. 420
McCleary, S. F., p. 448
McClusky, J. V., p. 68
McCoy, G. T., p. 199
Michaeli, W., p. 439
Mishra, A., p. 1056
Molina, G., p. 681
Mosallam, A. S., pp. 199, 386
Mukhopadhyay, M., p. 574
Munipalle, U., p. 835
Nelson, G. L., p. 20
Nomaguchi, K., p. 1100
Ohno, E., p. 740
Opalski, F. A., pp. 420, 617
Osswald, T. A., p. 698
Pezron, E., p. 314
Pisipati, J. S., p. 1071
Porter, J. R., p. 68
Priester, R. D., Jr., p. 68
Ramesh, N. S., p. 98
Rebeiz, K. S., p. 895
Reichard, R. P., p. 908
Rodriguez, E. L., p. 2
Roux, J. A., pp. 288, 484
Rowell, R. M., p. 54
Roy, A. K., p. 880
Sain, M. M., p. 38
Sanadi, A. R., p. 54
Sinha, P. K., p. 142
Small, J. D., p. 98
Smeriglio, P., p. 681
Smith, C., p. 871
Smith, I. C., p. 111
Smits, G. F., p. 361
Springer, G. S., p. 448
Srinivasan, S., p. 803
Stadelman, R. J., p. 213
Suspène, L., p. 314
Tabor, R. L., p. 155
Taylor, J., p. 871
Thoen, J. A., p. 361
Trochu, F., p. 262
Tseng, C.-W., p. 467
Tseng, H. S., p. 2
Tseng, S.-C., p. 698
Upadhyay, P. C., p. 1056
van der Wall, H. R., p. 87
Vaughan, J. G., pp. 188, 288, 484
Vedula, M., p. 541
Viscomi, P. V., p. 666

Wang, Q., p. 448
Wilson, M. L., p. 927
Wisnom, M. R., p. 722
Xian, X. J., p. 1135
Xu, L.-Y., p. 509
Yang, Y.-S., p. 314
Yeh, H.-Y., pp. 498, 793
Yokoyama, A., p. 740
Young, R. A., p. 54
Young, W.-B., p. 467